Intervals, Transformations, and Slope Solution (version 129)

1. The function f is graphed below.
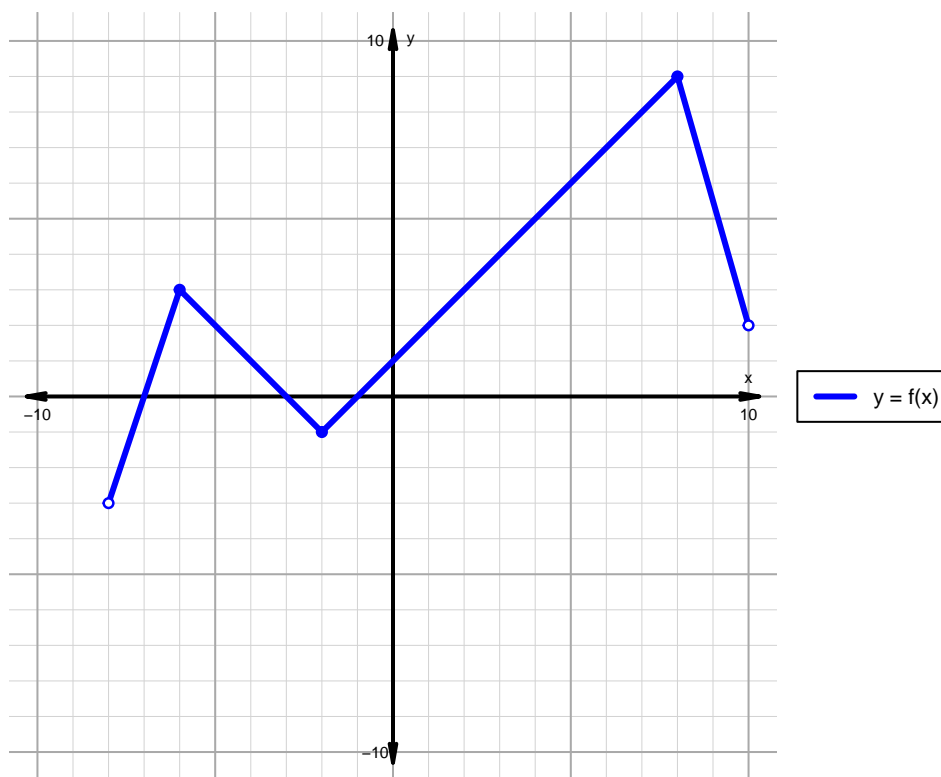
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-7, -3) \cup (-1, 10)$
Negative	$(-8, -7) \cup (-3, -1)$
Increasing	$(-8, -6) \cup (-2, 8)$
Decreasing	$(-6, -2) \cup (8, 10)$
Domain	$(-8, 10)$
Range	$(-3, 9)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = 2 \cdot f(x)$

$y = f(x - 2)$

$y = f(x) - 2$

$y = f(-2 \cdot x)$
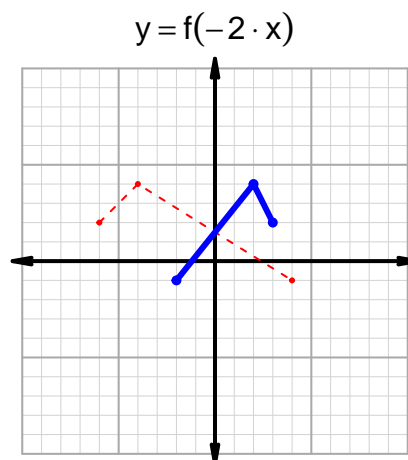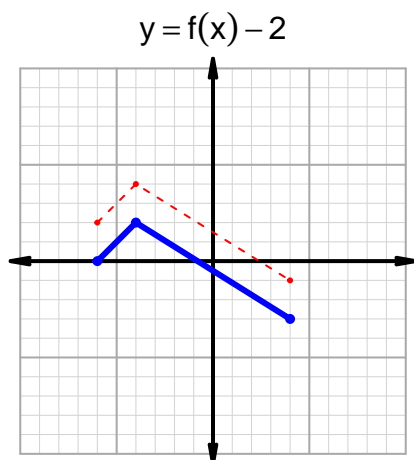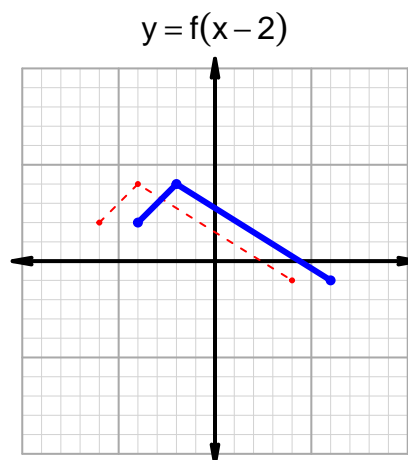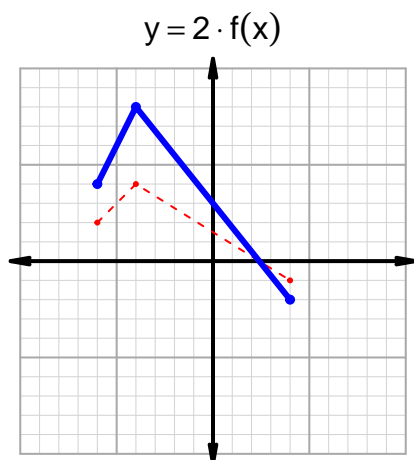
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 57$ and $x_2 = 77$. Express your answer as a reduced fraction.

x	$g(x)$
57	73
73	77
77	85
85	57

$\frac{f(77) - f(57)}{77 - 57} = \frac{85 - 73}{77 - 57} = \frac{12}{20}$

The greatest common factor of 12 and 20 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{3}{5}$$